

**A VLBI Test of Tropospheric Delay
Calibration with WVRs**

R P Linfield, L P Teitelbaum, S J Keihm, G M
Resch, M J Mahoney, R N Treuhaft
(Jet Propulsion Laboratory, 4800 Oak
Grove Dr. , Pasadena, CA 91106; e-mail:
rpl@logos.jpl.nasa.gov)

Dual frequency (S/X band) Very Long Baseline Interferometry (VLBI) observations were used to test troposphere calibration by Water Vapor Radiometers (WVRs) , A 21 km baseline at Goldstone, CA was used, with observations in April.-May, 1993 and June, 1994. Co-pointed WVRs within 50 m of each radio antenna were used in the 1993 observations. In 1994, only one co-pointed WVR was used; at the other radio antenna, a WVR 500 m away measured zenith delays.

Comparison of the VLBI and WVR measurements show a statistical agreement (specifically, their structure functions agree) on time scales <700 s. On longer time scales, VLBI instrumental errors became important. The improvement in VLBI residual delays from WVR calibration was consistent with the measured level of tropospheric fluctuations.

Preliminary analysis of the 1994 data indicates
1) VLBI instrumental errors were smaller than in 1993 (due to the use of a new radio antenna) 2) the troposphere was more active than during the 1993 observations 3) the correlation between VLBI and WVR delays was high.

1. 1994 Fall Meeting
2. 014428614 (AGU number)
3. (a) R P Linfield
238-700
JPL
4800 Oak Grove Dr.
Pasadena, CA 91106
(b) Tel. 818-354-2806
(c) Fax. 818-393-4965
4. G
5. (a) G04 Applications of
GPS Meteorology
7. 30% at 1993 Fall Meeting
8. Invoice \$60 to attached
PO #
9. C